IN THE CLAIMS

Please amend the claim as follows:

1. (Previously Presented) A broad-band light source comprising:

a semiconductor optical amplifier including an active layer serving as a gain area, an under-cladding layer and an over-cladding layer formed on the lower and the upper surfaces of the active layer, respectively, and antireflection layers formed at both ends of the active layer;

a reflector disposed for reflecting light outputted from the semiconductor optical amplifier so that the reflected light is inputted back to the active layer, the reflector configured to minimize a gain ripple of the semiconductor optical amplifier; and

an optical waveguide disposed between the semiconductor optical amplifier and the reflector, and configured to achieve an optical coupling between the semiconductor optical amplifier and the reflector.

2. (Original) The broad-band light source as set forth in claim 1, wherein the semiconductor optical amplifier comprises one of a traveling semiconductor optical amplifier and a reflective semiconductor optical amplifier.

3. (Canceled)

4. (Previously Presented) The broad-band light source as set forth in claim 1, wherein the length of the optical waveguide is at least twice as much as a coherence length of an amplified spontaneous emission of the light generated from the semiconductor optical amplifier.

5. (Previously Presented) The broad-band light source as set forth in claim 4,wherein the length of the optical waveguide is 10mm or more.

6. (Original) The broad-band light source as set forth in claim 1, wherein the reflector has a reflectivity of 1×10^{-5} or more.

7. (Original) The broad-band light source as set forth in claim 1, further comprising a polarization controller for controlling a polarization dependence of the semiconductor optical amplifier.

8. (Previously Presented) A broad-band light source comprising:

a semiconductor optical amplifier configured to output a light;

a reflector for reflecting the light outputted from one end of the semiconductor optical amplifier; and

an optical waveguide disposed between the semiconductor optical amplifier and the reflector, and configured to achieve an optical coupling between the semiconductor optical amplifier and the reflector.

9. (Original) The broad-band light source as set forth in claim 8, wherein the optical amplifier further comprising an active layer serving as a gain area, an under-cladding and over-cladding layers and formed on the lower and the upper surfaces of the active layer, and antireflection coating layers at both ends of the active layer.

10. (Previously Presented) The broad-band light source as set forth in claim 8, wherein the light that is generated by the semiconductor optical amplifier and that reaches the reflector via the optical waveguide is reflected back to the active layer of the semiconductor optical amplifier.

11. (Original) The broad-band light source as set forth in claim 8, wherein the semiconductor optical amplifier comprises one of a traveling semiconductor optical amplifier and a reflective semiconductor optical amplifier.

12. (Previously Presented) The broad-band light source as set forth in claim 8, wherein the length of the optical waveguide is at least twice as much as a coherence length of an amplified spontaneous emission of the light generated from the semiconductor optical amplifier.

13. (Previously Presented) The broad-band light source as set forth in claim 8, wherein the length of the optical waveguide is 10mm or more.

14. (Original) The broad-band light source as set forth in claim 8, wherein the reflector has a reflectivity of 1×10^{-5} or more.

15. (Original) The broad-band light source as set forth in claim 8, further comprising a polarization controller for controlling a polarization dependence of the semiconductor optical amplifier.